CBIA/CEC 2016 Energy Efficiency Forum

High Performance Attics:

Unvented Attics Using Loose Fill Insulation Below Roof Deck

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R&D Goals & Concerns

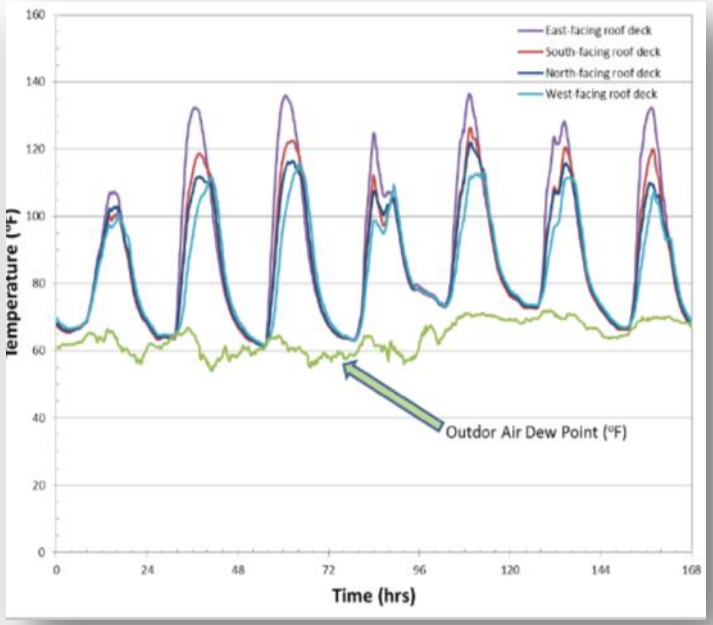
- **Currently building mostly vented attics**
  - Efficient: Moisture control in attic
  - Inefficient: Large difference in attic temp vs. living space
- **Unvented attic could be useful to increase home's overall EE**
  - Positive: Better EE performance while reducing other EE features
    Also, less complex than using soffits to bring ducts into conditioned space
  - Negative: Has added net cost; sometimes actually increase the risk of a failure
- **Balancing sustainability, durability and affordability**
  - Explore use of loose fill fiberglass, rather than spray foam, for unvented attic insulation in CA (this technique has good track record in southwest region)
  - Learning from our own tests, in different CA climate zones
  - Learn > improve > repeat

Evaluating Loose Fill Insulation

	Conventional Fiber Insulation on Attic Floor & in Walls *(current practice)*	Netted Fiber at Roof Deck (sealed Attic), and Conventional in Walls, with Advanced Sealing *(ZeroHouse San Marcos)*	Spray Foam at Roof Deck (sealed Attic), and Conventional in Walls, with Advanced Sealing *(hybrid spray foam & fiber)*	Spray Foam at Roof Deck (sealed Attic), and in Walls *(full spray foam)*
Est. Net Cost for Home in SoCal *(factoring reduction in other costs; & rebates)*	**X**	**2X**	**3X** *and add 1 day to cycle time*	**4X** *and add 1 to 2 days to cycle time*

ZeroHouse San Marcos – Test of Netted Fiber at Roof Deck

(Oak Ridge National Laboratory is monitoring and analyzing home's performance)



Next Steps

- **Continue to monitor the test homes.**
- **New tests in other CA climate zones.**
- **Looking for alternative EE solutions.**

Which is the cost effective alternative?

- Higher efficiency **water heater** and efficient plumbing system.
- More efficient **windows**
- More efficient **A/C**